

## PROPOSED

**RENEWAL AND MINOR MODIFICATION of**  
**TEMPORARY COVERED SOURCE APPLICATION REVIEW**  
**CSP Permit No. 0041-01-CT**  
**Application Number: 0041-02**

**Applicant:** West Oahu Aggregate Company, Incorporated  
**Facility:** Portable Stone Processing Plant  
**Located At:** (Initially) 92-460 Farrington Highway, Ewa, Oahu  
UTM Coord. 2362000N, 590850 E Zone 4

<b>Responsible</b>	Joaquin Silva	<b>POC:</b>	Bo Midro
<b>Official/Title:</b>	President/Owner	<b>Title:</b>	Administrator
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### **1. Background:**

This is an existing stone crushing facility originally permitted under Authority to Construct (ATC) No. A-1161-1026, and later authorized by Covered Source Permit (CSP) No. 0041-01-CT on December 18, 2000. The CSP will expire on December 1, 2005.

The application to renew CSP No. 0041-01-CT was submitted on December 2, 2004. As discussed below, the applicant subsequently submitted a revised application on January 10, 2005, for a modification to the permit because of changes in equipment at the facility.

Discussion with Mr. Bo Midro on January 10 and 14, 2005 covered the following items:

- a. The renewal application indicates that the permittee proposes not to exceed total operating hours of 2,080 in any rolling 12-month period. I advised Mr. Midro that the current CSP limits the plant to 2,496 hrs/yr. Midro indicated that 2,080 hrs/yr is sufficient because the Pioneer primary crusher ran less than 1,000 hrs last year and the Eagle secondary crusher was operated 1,176 hrs.
- b. The stone crushing facility is a stationary plant, according to the applicant, and the primary and secondary crushers will not be moved to other job sites. The plant is located at 92-460 Farrington Highway, in Waimanalo Gulch, Ewa, Oahu, the same location that was identified in the original permit application.
- c. The applicant is proposing to add a new Turbo Chieftain 500 TPH screening plant to run together with the stone processing plant (730 TPH primary crusher and a 450 TPH secondary crusher). As such, I advised Mr. Midro that the screen will be subject to NSPS regulations. I asked Mr. Midro if the applicant will also limit the screen to 2,080 hrs/yr. He said yes; that is sufficient since the screen was operated for less than 1,500 hours last year.
- d. Midro said that the Chieftain screen is on tracks and will be used at other temporary job sites, as necessary, in addition to being used in conjunction with the stone processing plant. As such, this permit will be renewed as a temporary source permit.

## PROPOSED

e. Other proposed modifications to the existing facility are as follows:

- Removal of the 500 TPH Extec Robotrac 7000 portable screen w/ insignificant 0.67 MMBtu/hr Deutz diesel engine from the CSP (the equipment was sold to Henry's Equipment in September 2004); and
- Removal of the 250 TPH Power Screen w/ insignificant 0.27 MMBtu/hr Lister Petter diesel engine (this equipment has been broken since 2001 and is beyond repair, according to Mr. Midro).

f. I asked Midro if he would like to have an "alternate operating scenario" provision written into the permit, to allow the temporary replacement of the 503 HP or 680 HP diesel engine (DE), if either has to be shut down for repairs or maintenance. Midro said he would like to have that option.

## 2. Equipment Description:

Existing equipment are listed in Table 1a. The applicant is proposing to add the equipment listed in Table 1b, and the applicant proposes to remove from the permit the equipment listed in Table 1c.

Table 1a: Existing Equipment

Type	Manufac.	Model/Serial No.	Description	Capacity <sup>a</sup>	Fuel
<b>Diesel Engines</b>					
Diesel engine	Caterpillar	Model 3408, SN 67U-16687	provides mechanical/hydraulic power to the primary crusher	503 HP	diesel no. 2 (max. 26.2 gal/hr)
Diesel engine generator	Cummins	Model KTA19-G4, SN 37187800	provides electric power to the secondary impact crusher and provides misc. power	680 HP	diesel no. 2 (max. 31.7 gal/hr)
<b>Stone Processing Plant</b>					
Pan & grizzly feeder	Simplicity	Model 0A120C SN 5716-0F120C	57"x16' feeds primary crusher	200 TPH	driven by the 680 HP DEG
Primary crusher	Pioneer	Model 4248, SN 4248-96	jaw crusher manufacture: 1994	730 TPH	driven by the 503 HP DEG
2ndary crusher	Eagle	Model 33D4200Jumbo1400 SN 10930	impact mill crusher manufacture: 1993	450 TPH	driven by the 680 HP DEG
3-deck screen	Simplicity	Model 0A140D SN 3620-HS140D	6'x20' triple deck screen manufacture: 1993	200 TPH	driven by the 680 HP DEG
Water sprays	--	--	water sprays at various locations		Hydraulic pressure & gravity flow
Conveyor system	--	--	various conveyors (14 trans. pts.)		driven by the 680 HP DEG

## PROPOSED

Table 1b: Proposed Equipment

Type	Manufacturer	Model/ Serial No.	Year	Description	Power Source
500 TPH <sup>a</sup> Vibrating Screen	Powerscreen	Turbo Chieftain 1400, SN 6608038	2002	2 deck, 11' x 5' ; On tracks	109 HP Deutz BF4M 1012C diesel engine (insignificant activity)

Table 1c: Equipment To Be Removed from CSP No. 0041-01-CT

Type	Manuf.	Model/Serial No.	Description/ date	Capacity <sup>a</sup>	Powered by /Fuel	Disposition
1-deck screen	EXTEC	Model Robotrac 7000 SN 5616	vibrating screen manufacture: 1999	500 TPH	Duetz diesel engine	Sold to Henry's Equipment, CSP 0576- 01
Diesel engine	Duetz	Model BF4M1012C, SN 00354341	provides power to the initial (Extec) power screen	0.67 MMBtu/hr	diesel no. 2 (max. 4.9 gal/hr)	
1-deck screen	Power Screen	Model unknown SN 2734890	vibrating screen	250 TPH	Lister Petter DE	Broken; beyond repair
Diesel engine	Lister Petter	Model TS3, SN 4700005TS3A002	provides power to the secondary Power screen	0.27 MMBtu/hr	diesel no. 2 (max. 1.97 gal/hr)	

<sup>a</sup> maximum capacities are from manufacturer through applicant

Fuel: All diesel engines will be fired by diesel fuel oil no. 2, with maximum sulfur content less than 0.5% by weight.

Standard Industrial Classification Code (SICC) listed as 1442 (in application), for Sand and Gravel, however 1429, for Crushed and Broken Stone, Not Elsewhere Classified, seems more appropriate since 1442 does not address crushing operations, thus will use 1429 instead.

Additional background information on the initial application and issued permit is available in permit file no. 0041-01.

Issuance of this permit no. **0041-02** will supersede Covered Source Permit (CSP) No. **0041-01-CT**, in its entirety.

### 3. Air Pollution Controls:

Waterspray bars are used at several points in the process. Water truck used for the storage piles and roads. Control efficiency of 70% used for wet suppression.

Fuel oil no. 2 with a maximum sulfur content of 0.5% by weight will be fired in the diesel engines to lessen the SO<sub>2</sub> emissions.

### 4. Project:

Process at the stone crushing facility is as follows:

Prior to being loaded into the jaw crusher, the material is run through a screen to separate the fines and dirt from the rocks.

## PROPOSED

Rocks to be crushed are loaded into the feeder of the primary jaw crusher by a front end loader. From the primary crusher the material travels via conveyor #1 to the secondary impact mill and then on conveyor belts #2 and #3 to the 3-deck screen. The screen separates the material into different sizes. One size travels on conveyors #4 and #5 to a stock pile. Another size travels on conveyors #6 and #7 to another stock pile, and a third size is transferred by chute to conveyor #8 and a stock pile. Oversize material is transferred by chute to conveyor #9, which returns it to the impact mill crusher. Newly installed water lines connected to a water tower allow water sprays at various locations. A water truck dampens the storage piles and roads to minimize fugitive dust. A weigh scale installed on each of the (3) radial stacker conveyors monitors the amount of stone being processed through the plant.

The two diesel engines (503 HP and 680 HP) power the crushers and provide for other electrical needs of the stone processing plant.

Non-resetting hour meters installed on each diesel engine will record the hours of operation of the stone processing operation and portable power screening plant.

### 5. Applicable Requirements:

#### a. Hawaii Administrative Rules (HAR)

Chapter 11-59, Ambient Air Quality Standards

Chapter 11-60.1, Subchapter 1, General Requirements

Chapter 11-60.1, Subchapter 2, General Prohibitions

11-60.1-31, Applicability

11-60.1-32, Visible Emissions

11-60.1-33, Fugitive Dust

11-60.1-38, Sulfur Oxides from Fuel Combustion

Chapter 11-60.1, Subchapter 5, Covered Sources

Chapter 11-60.1, Subchapter 6, Fees for Covered Sources, Noncovered Sources and Agricultural Burning

11-60.1-111, Definitions

11-60.1-112, General Fee Provisions for Covered Sources

11-60.1-113, Application Fees for Covered Sources

11-60.1-114, Annual Fees for Covered Sources

Chapter 11-60.1, Subchapter 8, Standards of Performance for Stationary Sources

11-60.1-161, New Source Performance Standards

Chapter 11-60.1, Subchapter 10 – Field Citations

#### b. Annual Emissions Reporting:

- (1). Consolidated Emissions Reporting Requirements (CERR) apply if emissions from the facility equal or exceed levels specified in 40 CFR 51, Subpart A, Appendix A, shown in the table below. CERR do not apply because facility emissions are below the CERR levels.
- (2). Although CERR do not apply, the Department requires annual emissions reporting if total facility-wide emissions of a particular pollutant exceed reporting levels indicated below. These reports are used internally and are not inputted into the CER database. Emissions reporting is required because facility-wide emissions of PM and PM-10 exceed Department of Health (DOH) reporting levels.

## PROPOSED

The table below summarizes the facility's emissions at its operational limit of 2,080 hr/yr compared to the various threshold levels.

**Maximum Emissions Compared to Significant Levels, CER, and "In-house" Thresholds ( All Values in TPY)**

Pollutant	Facility-Wide Emissions <sup>a</sup>	Significant Levels	CERR Triggering Levels (TPY)		"In-house" Reporting Levels
			1-Year Cycle (Type A Sources)	3-year Cycle (Type B Sources)	
NOx	21.64	40	≥ 250	≥ 100	≥ 25
CO	3.34	100	≥ 2500	≥ 100	≥ 250
SO2	4.24	40	≥ 2500	≥ 100	≥ 25
PM-10	31.37	15	≥ 250	≥ 100	≥ 25
PM	91.71	25	--	--	≥ 25
VOC	0.47	40	≥ 250	≥ 100	≥ 25
HAPs	4.55E-02	--	--	--	≥ 5

<sup>a</sup> Based on 2,080 hr/yr operations for following equipment at one site:

2 DEGs-- 503 HP Caterpillar; 3.59 Mmbtu/hr  
680 HP Cummins; 4.34 Mmbtu/hr  
Crushers-- 730 TPH Pioneer primary crusher  
450 TPH Eagle secondary crusher  
Screen-- 500 TPH Powerscreen Turbo Chieftain

### c. Compliance Data System (CDS)

CDS is an inventory system for covered sources subject to annual inspections. This source is subject to CDS because this facility is a covered source.

### d. New Source Performance Standards (NSPS)

40 Code of Federal Regulations (CFR) Part 60 - Standards of Performance for New Stationary Sources

Subpart A - General Provisions

Subpart OOO - Standards of Performance for Nonmetallic Mineral Processing Plants

The stone processing plant is subject to NSPS Subpart OOO, since the manufacture dates of the Simplicity primary crusher and the Eagle secondary crusher are both after August 1983 (NSPS trigger date of Subpart OOO) and the stone processing plant has a maximum capacity of greater than 150 TPH.

The proposed 500 TPH Chieftain screening plant is also subject to Subpart OOO because it was manufactured in after August 1983 and will be used together with the stone processing plant periodically.

## PROPOSED

e. PSD Applicability (HAR Chapter 11-60.1 Air Pollution Control, Subchapter. 7 PSD Review)

PSD applies to major stationary sources in an attainment area which emit or have the potential to emit 250 TPY (or 100 TPY for 28 named source categories) of any regulated pollutant, or to such sources making a major modification involving a significant net emissions. This source is not subject to **PSD** requirements because it is not a major stationary source, as defined in HAR Title 11, Chapter 60.1, Subchapter 7 and 40 CFR Part 52, Section 52.21.

f. MACT Requirements (40 CFR Part 63)

MACT is not applicable, because the facility is not a major source of hazardous air pollutants, nor does the facility belong to a source category for which a standard has been promulgated under 40 CFR Part 63.

g. NESHAP Requirements (40 CFR Part 61 & 63)

The facility is not subject to any standard under 40 CFR Part 61 and 63.

h. BACT Requirements

BACT analysis applies to new facilities or modifications to existing facilities which exceed significant emission levels. Modification to this existing facility involves adding a new 500 TPH Chieftain vibrating screen operating 2,080 hr/yr, and deletion of the 500 TPH Extec screen and 250 TPH Powerscreen. In a worst-case analysis, considering only the projected increase in pollutant emissions from the new Chieftain screen, and not discounting the emissions from the two disposed screens, the net increase in emissions are still less than the threshold levels for any of the criteria pollutants; thus, a BACT analysis is not applicable to the new equipment.

**Emissions from NEW 500 TPH Chieftain Screen and Diesel Engine \***

Pollutant	109 HP DE (exempt)	500 TPH Screen	Total	Signif. Levels (tpy)
NOx	3.50	--	<b>3.50</b>	40
CO	0.75	--	<b>0.75</b>	100
SO2	0.41	--	<b>0.41</b>	40
PM-10	0.25	0.70	<b>0.95</b>	25
PM	0.25	1.91	<b>2.16</b>	15
TOC	0.29	--	<b>0.29</b>	40

\* Operating at maximum 2,080 hr/yr

i. Compliance Assurance Monitoring (CAM) Requirements (40 CFR Part 64)

Applicability of the CAM Rule is determined on a pollutant specific basis for each affected emission unit. Each determination is based upon a series of evaluation criteria. In order for a source to be subject to CAM, each source must:

- Be located at a major stationary source per Title V of the Clean Air Act Amendments of 1990;

## PROPOSED

- Be subject to federally enforceable applicable requirements;
- Have pre-control device potential emissions that exceed applicable major source thresholds;
- Be fitted with an “active” air pollution control device; and
- Not be subject to certain regulations that specifically exempt it from CAM.

Emission units are any part or activity of a stationary source that emits or has the potential to emit any air pollutant. The facility is exempt from CAM provisions because this source is not a major source.

### **6. Insignificant Activities:**

The following are insignificant activities at the facility:

- 1 - 1,000 gallon diesel fuel storage tank;
- 1 - 500 gallon diesel fuel storage tank;
- 1 - 74 gallon diesel fuel storage tank (for the Chieftain screen's diesel engine);
- 1 - 124 gallon hydraulic fluid tank (for the Chieftain screen).

HAR 11-60.1-82(f)(1) deems as insignificant any storage tank, reservoir, or other container of capacity equal to or less than forty thousand gallons storing volatile organic compounds, except those storage tanks, reservoirs, or other containers subject to any standard or other requirement.

- 1 - Duetz diesel engine runs the Turbo Chieftain 500 TPH power screen. Consumes a maximum of 5.57 gal/hr of diesel fuel no. 2, with a heating value of 137,030 Btu/gal and wt. of 7.1 lb/gal (per AP-42, Section 3.3/3.4) which yields 0.763 MMBtu/hr.

HAR 11-60.1-82(f)(2) deems as insignificant, fuel burning equipment (other than smoke house generators) less than 1 MMBtu/hr, except where the total heat input capacity of all individually insignificant equipment exceeds 5 MMBtu/hr when operated within the facility and controlled by a single owner or operator.

The above insignificant activities are subject to the Special Conditions in Attachment II - INSIG.

### **7. Alternative Operating Scenarios:**

The applicant requested that an alternate operating scenario to allow either of the permitted diesel engines (503 HP Caterpillar DE or the 680 HP Cummins DE) to be temporarily replaced with an engine of the same or smaller size, if warranted, in the event of breakdowns of the permitted diesel engine.

### **8. Project Emissions:**

Fugitive dust emissions are generated from the work yard (vehicle traffic on unpaved roads and storage piles), quarrying, truck loading and unloading operations, conveyors, crushers, and a screening plant. Point source emissions of NO<sub>x</sub> (Nitrogen Oxides), SO<sub>2</sub> (Sulfur Dioxides), CO (Carbon Monoxide), VOC (Volatile Organic Compounds), PM, and PM<sub>10</sub> are generated by the diesel engines. Emissions were calculated assuming the worst-case scenario where the 500 TPH Chieftain screen is operated in conjunction with the stone processing plant, and all the equipment are operating at their maximum material process rates.

## PROPOSED

### Rock Crushing Operations.

Particulate matter emissions from crushed stone processing at the facility are summarized below and calculations are shown in Enclosure (1). Control efficiencies of 70% were assumed at the crushers and at all loading and transfer points in the crushing process. Emission calculations were based on the plant's equipment listed below operating at their maximum capacities at an unrestricted 8,760 hr/yr, and for 2,080 hrs/yr per the applicant's proposal.

<u>Equipment</u>	<u>Description</u>	<u>Max. mat'l Rate (TPH)</u>
Simplicity	Grizzly feeder	200
Pioneer 4248	Primary crusher	730
Eagle Jumbo	Secondary crusher	450
Simplicity	3-deck screen	200
Conveyors	14 transfer points	--

<b>SUMMARY- Rock Crushing</b>		
<b>Pollutant</b>	<b>Emissions (TPY)</b>	
	<b>8,760 hr/yr</b>	<b>2,080 hr/yr</b>
PM	72.83	17.29
PM-10	26.93	6.39
PM-2.5	10.93	2.59

AP-42, 11.19.2 (8/04), Crushed Stone Processing

### Screening Operations.

PM emissions from the screening process are summarized below and calculations are shown in Enclosure (2). Control efficiencies of 70% were assumed at the screen and at all loading and transfer points in the screening process. Emission calculations were based on the maximum capacity of the Turbo Chieftain screen (500 TPH) operating unrestricted 8,760 hr/yr and 2,080 hrs/yr per the applicant's proposal.

#### **Summary -- Screening Operations**

<b>Pollutant</b>	<b>Emissions (TPY)</b>	
	<b>8,760 hr/yr</b>	<b>2,080 hr/yr</b>
PM	8.04	1.91
PM-10	2.97	0.70
PM-2.5	1.21	0.29

AP-42, 11.19.2 (8/04), Crushed Stone Processing

### Stockpiles and Aggregate Handling

Worst case emissions from aggregate handling and storage piles were calculated for both the crushing and screening operations. Calculations were based on the higher maximum capacity of the two crushers (730 TPH) and the maximum capacity of the screen (500 TPH), operating at 8,760 hr/yr (unrestricted) and at 2,080 hr/yr (proposed limit by the applicant). A water spray efficiency of 70% was also assumed in all cases. Particulate emissions are summarized below and shown in Enclosure (3). All emissions were calculated using AP-42, Section 13.2.4 (1/95), Aggregate Handling and Storage Piles.

#### **Stockpile Emissions from Rock Crushing Operations**

<b>Pollutant</b>	<b>Material Rate (TPH)</b>	<b>Emissions (TPY)</b>	
		<b>8,760 hr/yr</b>	<b>2,080 hr/yr</b>
PM-2.5	730	4.04	0.96
PM-10	730	12.85	3.05
PM	730	27.19	6.46



## PROPOSED

### Stockpile Emissions from Power Screening Operations

Pollutant	Material Rate (TPH)	Emissions (TPY)	
		8,760 hr/yr	2,080 hr/yr
PM-2.5	500	2.77	0.66
PM-10	500	8.80	2.09
PM	500	18.62	4.42

### Combined Stockpile Emissions from Crushing & Screening Operations

Pollutant	Emissions (TPY)	
	8,760 hr/yr	2,080 hr/yr
PM	45.82	10.88
PM-10	21.64	5.14
PM-2.5	6.81	1.62

### Vehicle Travel on Unpaved Roads

Particulate emissions from vehicle travel on unpaved roads were calculated using AP-42, Section 13.2.2 (12/03), "Unpaved Roads." Emission rates were based on the following assumptions:

- a. Calculations for vehicle miles traveled (VMT) per year were based 0.4 miles round-trip travel per load into and out of the facility, an average truck's load capacity of 15 tons, and the maximum production rate of the facility (730 TPH) for conservatism.

Operating Hrs/Year	VMT (Miles/yr)	
	Crushing Plant (730 TPH)	Screening Plant (500 TPH)
8,760	170,528	116,800
2,080	40,491	27,733

\* Highest production rate (730 TPH) used for VMT calculation.

- b. An s (silt content of road) value of 10% for a processing plant road.
- d. A W (mean vehicle weight) value of 33.5 tons based on information from the applicant.
- e. A p (# of days with 0.01" of rain/year) value of 81 based on available data from the Honolulu Observatory site 702.2 ([www.wrcc.dri.edu/cgi-bin](http://www.wrcc.dri.edu/cgi-bin)) .
- f. A 70% control efficiency was applied to account for dust control from the water truck.

## PROPOSED

- g. Particulate matter emissions from vehicle travel on unpaved roads are based on the above criteria, and are shown in enclosure (3) and summarized as follows:

### Emissions from Vehicle Travel on Unpaved Roads

Facility	Pollutant	Unlimited (8,760 hr/yr)		Limited (2,080 hr/yr)	
		VMT (miles/yr)	Emission (TPY)	VMT (miles/yr)	Emission (TPY)
Crushing & Screening * (730 TPH)	<b>PM-2.5</b>	170,528	11.50	40,491	2.73
	<b>PM-10</b>	170,528	75.02	40,491	17.81
	<b>PM</b>	170,528	254.03	40,491	60.32

\* If Crusher and Screener are operating at same facility, amount of material trucked is limited to material thruput at the facility. The highest crushing rate was used for conservatism.

### Diesel Engine Emissions.

- a. Emissions from the crusher's 503 HP Caterpillar diesel engine are based on the following and are shown in enclosure (5) and summarized in the table below:
- Fuel consumption rate of 26.2 gal/hr.
  - Diesel fuel has a heating value of 137,000 BTU/gal and contains 0.5% Sulfur.

### Emissions from 503 HP Caterpillar diesel engine

Pollutant	Emission (lb/hr)	Emission (TPY)	
		w/ No Permit Limit (8,760 hr/yr)	Permit Limits (2,080 hr/yr)
NO <sub>x</sub> <sup>b</sup>	7.313	32.031	7.606
CO <sup>b</sup>	1.830	8.015	1.903
SO <sub>2</sub>	1.845	8.083	1.919
PM-2.5 <sup>a</sup>	1.001	4.386	1.042
PM-10	1.113	4.874	1.157
PM	1.113	4.874	1.157
TOC <sup>b</sup>	0.176	0.771	0.183
HAPs		1.09E-01	2.58E-02

<sup>a</sup> PM-2.5 = 90% of PM (AP 42, Appendix B-2, pg B.2-11, 9/90)

<sup>b</sup> Emission rates for NO<sub>x</sub>, CO, PM and HC are from mfg's exhaust chemistry provided by applicant.

- b. Emissions from the crusher's 680 HP Cummins diesel engine are based on the following and are shown in enclosure (5) and summarized in the table below:

- Fuel consumption rate of 31.7 gal/hr.

## PROPOSED

- Diesel fuel has a heating value of 137,000 BTU/gal and contains 0.5% Sulfur.

### Emissions from 680 HP Cummins diesel engine

Pollutant	Emission (lb/hr)	Emission (TPY)	
		w/ No Permit Limit (8,760 hr/yr)	Permit Limits (2,080 hr/yr)
NO <sub>x</sub> <sup>b</sup>	13.492	59.095	14.032
CO <sup>b</sup>	1.379	6.040	1.434
SO <sub>2</sub>	2.233	9.779	2.322
PM-2.5 <sup>a</sup>	0.135	0.591	0.140
PM-10 <sup>b</sup>	0.150	0.657	0.156
PM <sup>b</sup>	0.150	0.657	0.156
TOC <sup>b</sup>	0.277	1.213	0.288
HAPs		8.30E-02	1.97E-02

<sup>a</sup> PM-2.5 = 90% of PM (AP 42, Appendix B-2, pg B.2-11, 9/90)

<sup>b</sup> Emission rates for NO<sub>x</sub>, CO, PM and HC are from mfg's exhaust chemistry provided by applicant.

- c. Emissions from the Turbo Chieftain screen's exempt 109 HP Duetz diesel engine are based on the following and are shown in enclosure (5) and summarized in the table below:

- Fuel consumption rate of 5.57 gal/hr.
- Diesel fuel has a heating value of 137,000 BTU/gal and contains 0.5% Sulfur.

### Emissions from exempt 109 HP Duetz diesel engine

Pollutant	Emission (lb/hr)	Emission (TPY)	
		No Permit Limit (8,760 hr/yr)	Permit Limit (2,080 hr/yr)
NOX	3.365	14.74	3.50
CO	0.725	3.17	0.75
SO <sub>2</sub>	0.392	1.72	0.41
PM-2.5 <sup>a</sup>	0.213	0.93	0.22
PM-10	0.237	1.04	0.25
PM	0.237	1.04	0.25
TOC	0.275	1.20	0.29
HAPs		2.31E-02	5.48E-03

<sup>a</sup> PM-2.5 = 90% of PM (AP 42, Appendix B-2, pg B.2-11, 9/90)

<sup>b</sup> Emission rates for NO<sub>x</sub>, CO, PM and HC are from mfg's exhaust chemistry provided by applicant.

## PROPOSED

### Facility-wide Emissions

Facility-wide emissions from the facility operating 2,080 hr/yr are tabulated below and at enclosure (6). The worst-case scenario of all of the applicant's equipment operating at the same site was assumed in calculating facility-wide emissions.

A major source as defined in Section 11-60.1-1 of HAR Title 11, has the potential to emit any HAP of 10 TPY or more, or 25 TPY or more of any combination of HAPs, or 100 TPY or more of any air pollutant. The maximum potential emissions of the facility, when operating within the limit of 2,080 hrs/yr, do not exceed major source levels as required by regulations. The tabulation shows that the majority of emissions are particulate matter, fugitive in nature, and are mostly generated by vehicle traffic on the unpaved roads.

#### **FACILITY-WIDE EMISSIONS (TPY)-- Operating 2,080 Hr/yr**

Pollutant	Insignif. Diesel Engine *	503 HP Caterp. DE*	680 HP Cummins DE	Crushing Operation *	Screening Operation *	Stock-piles **	Vehicle Travel ***	Total Emissions (Excluding Insig. D.E.)	Total Emissions (INcluding Insig. DE)
NOx	3.50	7.606	14.032	--	--	--	--	21.64	25.14
CO	0.75	1.903	1.434	--	--	--	--	3.34	4.09
SO2	0.41	1.919	2.322	--	--	--	--	4.24	4.65
PM-2.5	0.22	1.042	0.140	2.59	0.29	1.62	2.73	8.41	8.63
PM-10	0.25	1.157	0.156	6.39	0.70	5.14	17.81	31.37	31.61
PM	0.25	1.157	0.156	17.29	1.91	10.88	60.32	91.71	91.96
VOC	0.29	0.183	0.288	--	--	--	--	0.47	0.76
HAPs	5.48E-03	2.58E-02	1.97E-02	--	--	--	--	0.05	0.05

\* Facility equipment:

Exempt DE-	109 HPDeutz; 0.763 Mmbtu/hr	Crushers-	730 TPH Pioneer primary crusher
2 DEGs-	503 HP Caterpillar; 3.59 Mmbtu/hr		450 TPH Eagle secondary crusher
	680 HP Cummins; 4.34 Mmbtu/hr	Screen-	500 TPH Turbo Chieftain powerscreen

\*\* Stockpile emissions based on tonnage of material available to keep equipment operating at maximum capacity.

\*\*\* Vehicle travel emissions based on material that is processed by the facility and available for trucking;

for conservatism, the highest crushing rate of 730 TPH was used as the facility's material process rate.

NOTE: Facility-wide emissions for the screen as a stand-alone are not tabulated here since total emissions would be much lower than calculated in this table.

## PROPOSED

### 9. Synthetic Minor Source:

Synthetic Minor Applicability: A synthetic minor source is a facility that is potentially major (as defined in HAR 11-60.1-1), but is made non-major through federally enforceable permit conditions. This facility is a synthetic minor, since emissions would exceed major source levels (100 TPY) for NO<sub>x</sub>, PM and PM-10 if operated without permit limits. (See table below)

#### FACILITY-WIDE EMISSIONS (TPY)-- Operating 8,760 Hr/yr

Pollutant	Insignif. Diesel Engine *	503 HP Caterp. DEG*	680 HP Cummins DEG	Crushing Operation *	Screening Operation *	Stock-piles **	Vehicle Travel ***	Total Emissions (Including Insig. D.E.)
NO <sub>x</sub>	14.74	32.031	59.095	--	--	--	--	105.86
CO	3.17	8.015	6.040	--	--	--	--	17.23
SO <sub>2</sub>	1.72	8.083	9.779	--	--	--	--	19.58
PM-2.5	0.93	4.386	0.591	10.93	1.21	6.81	11.50	36.35
PM-10	1.04	4.874	0.657	26.93	2.97	21.64	75.02	133.13
PM	1.04	4.874	0.657	72.83	8.04	45.82	254.03	387.29
VOC	0.29	0.771	1.213	--	--	--	--	2.27
HAPs	2.31E-02	1.09E-01	8.30E-02	--	--	--	--	0.21

\* Facility equipment:

Exempt DE- 109 HP Deutz; 0.763 Mmbtu/hr

2 DEGs- 503 HP Caterpillar; 3.59 Mmbtu/hr

680 HP Cummins; 4.34 Mmbtu/hr

Crushers- 730 TPH Pioneer primary crusher

450 TPH Eagle secondary crusher

Screen- 500 TPH Turbo Chieftain powerscreen

\*\* Stockpile emissions based on tonnage of material available to keep equipment operating at maximum capacity.

\*\*\* Vehicle travel emissions based on material that is processed by the facility and available for trucking;

for conservatism, the highest crushing rate of 730 TPH was used as the facility's material process rate.

NOTE: Facility-wide emissions for the screen as a stand-alone are not tabulated here since total emissions would be much lower than calculated in this table.

### 10. Air Quality Assessment:

Screen3 modeling program was used by the Department of Health (DOH) during the initial permit application process to predict concentration levels from the 680 HP & 503 HP diesel engines running the stone processing plant in complex (greatest impacts in complex terrain valley/simple) terrain, since the nearest ambient air is 126 meters away on the side of the valley.

All model calculations were obtained using the regulatory default mode. Rural land use was assumed, and default meteorological conditions were used. Building downwash was not assumed from the jaw crusher for which the diesel engine stack height does not meet Good Engineering Practice (GEP) stack height guidelines (applicant's GEP analysis), because concentrations are higher without the downwash impacts.

The results of the Air Quality Impact Analysis (AQIA) in the original permit review showed that the emissions impact from the facility will comply with State and Federal ambient air quality standards (AAQS). The AAQS for nitrogen dioxide (NO<sub>2</sub>) were met by including an hour limit in the original permit: "The total operating hours of the stone processing plant shall not exceed 2,496 hours in any rolling twelve (12) month period." Because the facility is operating in the same location (Waimanalo Gulch, Oahu) with the same 680 HP & 503 HP diesel engine, and with a proposed lower hour limit of 2,080 hrs/year, another AQIA is not necessary for this application review.

## PROPOSED

The DOH air modeling guidance does not require an air quality impact analysis for fugitive emissions and intermittent releases of particulates from sources such as the screening plant and stone processing plant.

### **11. Significant Permit Conditions:**

The stone processing plant (including the primary crusher, secondary crusher, 3-deck screen, and conveyor transfer points, as well as the Turbo Chieftain screen, (if used together with the crushers) is subject to conditions of NSPS, 40 CFR Part 60 Subpart OOO. Applicant will meet federal and state regulations by having water sprays in the stone processing plant. The following conditions shall apply:

Condition: The facility, including the stone processing facility and the portable screening plant, shall be limited to operating hours of 2,080 hours in any rolling twelve month period.

Purpose: This operation limit was proposed by the applicant based on his past and anticipated operations. This restriction is required to meet NAAQS and SAAQS for NO<sub>2</sub>, and to keep NO<sub>x</sub>, PM and PM-10 emissions under 100 TPY, which is a requirement of temporary covered source facilities.

Condition: The 503 HP, 680 HP and the insignificant 109 HP diesel engines shall have hour meters to record the engines' running time.

Purpose: Condition is required to monitor the facility's equipment operational limit of 2,080 hours per rolling 12-month period. The 503 HP and 680 HP diesel engine, the primary and secondary rock crushers, and the 500 TPH screen are all subject to this operational limit.

### **12. Conclusion and Recommendations:**

West Oahu Aggregate Company, Incorporated, currently operates a stone processing plant permitted under CSP No. 0041-01-CT. The renewal and modification of this permit will allow the continued operation of the plant with two diesel engines, along with a new portable power screening plant.

Conservatism used in the emissions estimates includes the following:

- Used the maximum capacities of the equipment when calculating emissions from them.
- According to the applicant, these maximum production rates are about 2 to 3 times greater than the actual throughput rates (actual production rate is around 200 TPH).

Based on the information supplied by West Oahu Aggregate Company, Incorporated, it is the preliminary determination of the DOH that the proposed project will not cause or contribute to a violation of any State or National ambient air quality standard. Renewal and modification of the Covered Source Permit is recommended based on the review of the information provided by the applicant and subject to significant permit conditions, public comments, and USEPA review. Issuance of this permit renewal and modification will supersede Covered Source Permit (CSP) No. **0041-01-CT** in its entirety.

WK, 2/3/05